IN THE CLAIMS

Claim 1 (original) A method of manipulating a microscopic quantity of material, comprising:

providing an optical fiber probe having a tip with a hole fabricated therein, said hole being sufficiently small and sufficiently deep that upon immersion of said tip in said material a virtual seal forms to inhibit penetration of said material into said hole;

immersing said tip in said material; and

sending laser radiation through said optical fiber probe to disrupt said virtual seal and thereby promote entry of said material into said hole.

Claim 2 (original) A method as claimed in claim 1, wherein said tip is sharp to facilitate penetration of said probe into a medium containing said material.

Claim 3 (original) A method as claimed in claim 2, wherein said laser radiation is pulsed.

Claim 4 (original) A method as claimed in claim 1, wherein said hole has a diameter of between 10-200 nm.

Claim 5 (original) A method as claimed in claim 2, wherein said sharp tip has a conical structure.

Claim 6 (original) A method as claimed in claim 1, wherein said hole has an aspect ratio of at least 1:1.

Claim 7 (original) A method as claimed in claim 6, wherein said hole has a diameter of less than 200 nm.

Claim 8 (original) A method as claimed in claim 1, wherein said optical fiber probe forms part of an array of such probes.

Claim 9 (original) A method as claimed in claim 8, wherein said array of probes are integrally formed within a common substrate.

Claim 10 (original) A method as claimed in claim 9 wherein said array of probes are interfaced with a biochip.

Claim 11. (cancelled)

Claim 12 (original) A method as claimed in claim 1, wherein a pulsed laser beam is applied to trap the said material to perform a biopsy.

Claim 13 (original) A method as claimed in claim 1 wherein said probe is used to promote the entry of a bead containing a drug or a sensor into the hole for ejection into a biological material.

Claim 14 (original) A method as claimed in claim 1, wherein material trapped in the hole is injected into a mass spectrometer for constituent analysis.

Claim 15 (original) A method as claimed in claim 1, wherein material in said hole is subsequently controllably ejected with the aid of a pulsed laser beam.

Claim 16 (original) A method as claimed in claim 15, wherein said ejected material is ejected into a living cell.

Claim 17 (currently amended) A probe for manipulating small quantities of material, comprising:

an optical fiber probe having a tip with a hole fabricated therein, said hole being sufficiently small and sufficiently deep that upon immersion of said tip in said material a virtual seal forms to inhibit penetration of said material into said hole; and

said optical fiber probe providing a waveguide to direct laser radiation to said hole to disrupt said virtual seal and thereby promote entry of said material into said hole.

Claim 18 (original) A probe as claimed in claim 17, wherein said tip is sharp to facilitate penetration of said probe into a medium containing said material.

Claim 19 (original) A probe as claimed in claim 17, wherein said hole has an aspect ratio of at least 1:1.

Claim 20 (original) A probe as claimed in claim 19, wherein said hole has a diameter of 10-200 nm.

Claim 21 (original) A probe as claimed in claim 17, wherein said sharp tip is in the form of a conical structure and said hole is provided on the apex of said conical structure.

Claim 22 (original) A probe as claimed in claim 17, wherein the waveguide region surrounding said hole is annular and has a width close to $\lambda/2n$, where n is the refractive index of the waveguide medium surrounding the hole and λ is the wavelength of the laser radiation.

Claim 23 (original) A probe as claimed in claim 18, wherein the optical fiber has a portion of reduced diameter adjacent to said sharp tip.

Claim 24 (original) A probe as claimed in claim 17, wherein said optical fiber has a high GeO_2 doped core.

Claim 25 (original) A probe as claimed in claim 24, wherein said optical fiber has an F_2 doped cladding.

Claim 26 (original) A probe has claimed in claim 17, wherein said optical fiber has an index of refraction which is approximately parabolic in shape across said core.

Claim 27 (original) A probe as claimed in claim 26, wherein said index of refraction has a narrow central dip in said core that drops approximately to the level of the cladding.

Claim 28 (cancelled)

Claim 29 (cancelled)

Claim 30 (cancelled)

Claim 31 (cancelled)

Claim 32 (cancelled)

Claim 33 (cancelled)

Claim 34 (cancelled)

Claim 35 (cancelled)

Claim 36 (cancelled)

Claim 37 (cancelled)

Claim 38 (cancelled)

Claim 39 (cancelled)

Claim 40 (cancelled)

Claim 41 (original) A method of inserting a small quantity of material into a cell, comprising:

immersing in said material an optical fiber probe having a tip with a hole fabricated therein, said hole being sufficiently small that upon immersion of said tip in said material a virtual seal forms to inhibit penetration of said material into said hole;

sending laser pulse radiation said optical fiber probe to disrupt said virtual seal and thereby promote entry of said material into said hole;

inserting said optical fiber probe into said cell; and

ejecting said material from said probe into said cell.

Claim 42 (original) A method as claimed in claim 41, wherein a pulsed laser beam is applied to said material trapped in said hole to eject said material therefrom.

Claim 43 (cancelled)

Claim 44 (cancelled)

Claim 45 (cancelled)

Claim 46 (cancelled)

Claim 47 (cancelled)

Claim 48 (cancelled)

Claim 49 (cancelled)

Claim 50 (cancelled)

Claim 51 (cancelled)

Claim 52 (cancelled)

Claim 53 (cancelled)

Claim 54 (cancelled)

Claim 55 (cancelled)

Claim 56 (cancelled)

Claim 57 (cancelled)

Claim 58 (cancelled)